

Amendments to the Claims

The current listing of the claims replaces all previous amendments and listing to the claims.

1. (Currently Amended) An objective lens drive apparatus ~~for use~~ configured to be used in an optical pickup, comprising:

a magnetic circuit ~~including~~ comprising a magnet configured to be magnetized in two polarities; and

a coil unit ~~including~~ comprising a focus coil, a tracking coil and a tilt coil, wherein the focus coil, the tracking coil and the tilt coil are disposed within a magnetic gap of the magnetic circuit.

2. (Currently Amended) ~~An~~ The objective lens drive apparatus according to claim 1, wherein the magnetic circuit ~~includes~~ comprises a plurality of ~~the magnet, and the coil unit is disposed within the magnetic gap formed by the magnets~~ magnets.

3. (Currently Amended) ~~An~~ The objective lens drive apparatus according to claim 1, wherein the coil unit ~~includes~~ comprises a plurality of printed circuit boards, and the focus coil, the tracking coil and the tilt coil are separately ~~mounted~~ disposed on the printed circuit boards.

4. (Currently Amended) ~~An~~ The objective lens drive apparatus according to claim 1, wherein the coil unit ~~includes~~ comprises a plurality of first ~~printed circuit boards~~ and second printed boards, and the focus coil and the tracking coil are ~~mounted~~ disposed on the first printed circuit board and the tilt coil is ~~mounted~~ disposed on the second printed board.

5. (Currently Amended) ~~An~~ The objective lens drive apparatus according to claim 1, wherein the coil unit ~~includes~~ comprises a plurality of first ~~printed circuit boards~~ and second printed boards, and the focus coil and the tilt coil are mounted on the first printed circuit board and the tracking coil is mounted on the second printed board.

6. (Currently Amended) ~~An~~ The objective lens drive apparatus according to claim 1, wherein the ~~number of the~~ coil unit comprises only one focus coil ~~is one~~, ~~the number of the~~ an even number of tracking coil ~~is even~~ coils and ~~the number of the~~ two tilt coil ~~is two~~ coils, and wherein the magnet is configured to be magnetized in two polarities in a focus direction.

7. (Currently Amended) ~~An~~ The objective lens drive apparatus according to claim 1, wherein the coil unit comprises an even number of the focus coil ~~is even~~ coils, ~~the number of the~~ only one tracking coil ~~is one and the number of the~~ and two tilt coil ~~is two~~ coils, and wherein the magnet is configured to be magnetized in two polarities in a tracking direction.

8. (Currently Amended) An objective lens drive apparatus ~~for use~~ configured to be used in an optical pickup, comprising:

two magnetic circuits each ~~including~~ comprising a magnet configured to be magnetized in two polarities; and

a coil unit ~~including~~ comprising a focus coil, a tracking coil and a tilt coil, wherein the focus coil, the tracking coil and the tilt coil are disposed within a magnetic gap of one of the magnetic ~~circuit~~ circuits.

9. (Currently Amended) ~~An~~ The objective lens drive apparatus according to claim 8, wherein the magnetic circuit ~~includes~~ comprises a plurality of ~~the magnet~~, and ~~the coil unit is disposed within the magnetic gap~~ magnets.

10. (Currently Amended) ~~An~~ The objective lens drive apparatus according to claim 8, wherein the coil unit ~~includes~~ comprises a plurality of printed circuit boards, and the focus coil, the tracking coil and the tilt coil are separately ~~mounted~~ disposed on the printed circuit boards.

11. (Currently Amended) ~~An~~ The objective lens drive apparatus according to claim 8, wherein the coil unit ~~includes~~ comprises a plurality of first ~~printed circuit boards~~ and

second printed boards, and the focus coil and the tracking coil are ~~mounted~~ disposed on the first printed ~~circuit~~ board and the tilt coil is ~~mounted~~ disposed on the second printed board.

12. (Currently Amended) ~~An~~ The objective lens drive apparatus according to claim 8, wherein the coil unit ~~includes~~ comprises a plurality of first ~~printed circuit boards~~ and second printed boards, and the focus coil and the tilt coil are ~~mounted~~ disposed on the first printed ~~circuit~~ board and the tracking coil is mounted on the second printed board.

13. (Currently Amended) ~~An~~ The objective lens drive apparatus according to claim 8, wherein the coil unit is ~~fixed to the two side surfaces of~~ disposed on a lens holder extending ~~in~~ parallel with a tracking direction.

B 14. (Currently Amended) ~~An~~ The objective lens drive apparatus according to 8, wherein the ~~number of the~~ coil unit comprises only one focus coil ~~is one~~, ~~the number of the~~ an even number of tracking coil ~~is even~~ coils and ~~the number of the~~ two tilt coil ~~is two~~ coils, and also wherein the magnet is configured to be magnetized in two polarities in a focus direction.

15. (Currently Amended) ~~An~~ The objective lens drive apparatus according to claim 8, wherein the ~~number of the~~ coil unit comprises an even number of focus coil ~~is even~~ coils, ~~the number of the~~ only one tracking coil ~~is one~~ and ~~the number of the~~ and two tilt coil ~~is two~~ coils, and also wherein the magnet is configured to be magnetized in two polarities in the focus direction.

16. (Currently Amended) ~~An~~ The objective lens drive apparatus according to claim 8, wherein the focus coil is wound on ~~the side surface of~~ a lens holder, and the tracking coil and the tilt coil are ~~respectively mounted~~ disposed on the ~~two side surfaces~~ lens holder extending ~~in~~ parallel with the tracking direction

17. (Currently Amended) ~~An~~ The objective lens drive apparatus according to claim 16, wherein the ~~numbers of the~~ coil unit comprises two tracking coils and two tilt coils ~~mounted on one the surface of~~ disposed on the lens holder ~~are respectively two~~.

18. (Currently Amended) ~~An~~ The objective lens drive apparatus according to claim 16, wherein the tracking coil and the tilt coil are ~~both~~ superimposed on the focus ~~coils~~ coil.

19. (Currently Amended) ~~An~~ The objective lens drive apparatus according to claim 16, wherein the tracking coils and the tilt coils are ~~both~~ wound around coil winding frames provided on and projected from ~~the side surfaces of~~ the lens holder.

20. (Currently Amended) ~~An~~ The objective lens drive apparatus according to claim 16, wherein the tracking coils are wound around coil winding frames provided on and projected from ~~the side surfaces of~~ the lens holder and the tilt coils are superimposed on the focus ~~coils~~ coil.

21. (Currently Amended) ~~An~~ The objective lens drive apparatus according to claim 16, wherein the tracking coils are superimposed on the focus ~~coils~~ coil and the tilt coils are wound around coil winding frames provided on and projected from ~~the side surfaces of~~ the lens holder.

22. (Currently Amended) An objective lens drive apparatus configured to be used in an optical pickup ~~for detecting to detect~~ the inclination of an optical disk to adjust the inclination of an objective lens in accordance with an inclination signal of the optical disk, comprising:

a magnetic circuit ~~including~~ comprising a magnet configured to be magnetized in two polarities; and

a coil unit ~~including~~ comprising a focus coil, a tracking coil and a tilt coil,

wherein the focus coil, the tracking coil and the tilt coil are disposed within a magnetic gap of the magnetic circuit,

wherein a focus servo is configured to be executed by supplying currents respectively to a plurality of the focus coils due to ~~the~~ a sum of drive forces generated in the plurality of focus coils, and

wherein ~~the~~ an inclination adjustment of the objective lens is configured to be executed by generating a moment around ~~the~~ a center of gravity of a movable part due to ~~the~~ a difference between the drive forces.

23. (Currently Amended) ~~An~~ The objective lens drive apparatus according to claim 22, wherein the magnetic circuit ~~includes~~ comprises a plurality of ~~the magnet, and the coil~~ unit is disposed within the magnetic gap formed by the magnets magnets.

24. (Currently Amended) ~~An~~ The objective lens drive apparatus according to claim 22, wherein the coil unit ~~includes~~ comprises a plurality of printed circuit boards, and the focus coil and the tracking coil are separately ~~mounted~~ disposed on the printed circuit boards.

25. (Currently Amended) ~~An~~ The objective lens drive apparatus according to claim 22, wherein the coil unit ~~includes a plurality of~~ comprises a printed circuit boards board, and the focus coil and the tracking coil are ~~mounted~~ disposed on the printed circuit board.

26. (Currently Amended) ~~An~~ The objective lens drive apparatus according to 22, wherein the ~~number of the~~ coil unit comprises an even number of focus ~~coil is even~~ coils and ~~the number of the~~ only one tracking coil ~~is one~~, and the magnet is configured to be magnetized in two polarities in a tracking direction.

27. (Currently Amended) An objective lens drive apparatus configured to be used in an optical pickup ~~for detecting~~ to detect the inclination of an optical disk to adjust the inclination of an objective lens in accordance with an inclination signal of the optical disk, comprising:

a magnetic circuit ~~including~~ comprising a magnet configured to be magnetized in two polarities; and

a coil unit ~~including~~ comprising a focus coil, a tracking coil and a tilt coil,
wherein the focus coil, the tracking coil and the tilt coil are disposed within a
magnetic gap of the magnetic circuit,

wherein a tracking servo is configured to be executed by supplying currents
respectively to a plurality of the tracking coils due to ~~the~~ a sum of drive forces generated in
the plurality of focus coils, and

wherein ~~the~~ an inclination adjustment of the objective lens is configured to be
executed by generating a moment around ~~the~~ a center of gravity of a movable part due to ~~the~~
a difference between the drive forces.

28. (Currently Amended) ~~An~~ The objective lens drive apparatus according to claim
27, wherein the magnetic circuit ~~includes~~ comprises a plurality of ~~the magnet, and the coil~~
~~unit is disposed within the magnetic gap formed by the magnet gaps~~ magnets.

29. (Currently Amended) ~~An~~ The objective lens drive apparatus according to claim
27, wherein the coil unit ~~includes~~ comprises a plurality of printed circuit boards, and the
focus coil and the tracking coil are separately ~~mounted~~ disposed on the printed circuit boards.

30. (Currently Amended) ~~An~~ The objective lens drive apparatus according to claim
27, wherein the coil unit ~~includes a plurality of~~ comprises a printed circuit board, and the
focus coil and the tracking coil are mounted on the printed circuit board.

31. (Currently Amended) ~~An~~ The objective lens drive apparatus according to claim
27, wherein the ~~number of the~~ coil unit comprises only one focus coil ~~is one~~ and ~~the number~~
~~of the~~ an even number of tracking ~~coil is even~~ coils, and the magnet is configured to be
magnetized in two polarities in a focus direction.

32. (Currently Amended) An objective lens drive apparatus configured used in an
optical pickup ~~for detecting~~ to detect the inclination of an optical disk to adjust the inclination
of an objective lens in accordance with an inclination signal of the optical disk, comprising:

two magnetic circuits respectively ~~including~~ comprising a magnet configured to be magnetized in two polarities; and

a coil unit ~~including~~ comprising a focus coil, a tracking coil and a tilt coil,
wherein the focus coil, the tracking coil and the tilt coil are disposed within a magnetic gap of one of the magnetic ~~circuit~~ circuits,

wherein a focus servo is configured to be executed by supplying currents respectively to a plurality of the focus coils due to ~~the~~ a sum of drive forces generated in the plurality of focus coils, and

wherein ~~the~~ an inclination adjustment of the objective lens is configured to be executed by generating a moment around ~~the~~ a center of gravity of a movable part due to ~~the~~ a difference between the drive forces.

33. (Currently Amended) ~~An~~ The objective lens drive apparatus according to claim 32, wherein the magnetic circuit ~~includes~~ comprises a plurality of ~~the magnet, and the coil unit is disposed within the magnetic gap formed by the magnets~~ magnets.

34. (Currently Amended) ~~An~~ The objective lens drive apparatus according to claim 32, wherein the coil unit ~~includes~~ comprises a plurality of printed circuit boards, and the focus coil and the tracking coil are separately ~~mounted~~ disposed on the printed circuit boards.

35. (Currently Amended) ~~An~~ The objective lens drive apparatus according to claim 32, wherein the coil unit ~~includes a plurality of~~ comprises a printed circuit ~~boards~~ board, and the focus coil and the tracking coil are mounted on the printed circuit board.

36. (Currently Amended) ~~An~~ The objective lens drive apparatus according to 32, wherein the ~~number of the~~ coil unit comprises an even number of focus ~~coil is even~~ coils and ~~the number of the~~ only one tracking coil ~~is one~~, and the magnet is configured to be magnetized in two polarities in a tracking direction.

37. (Currently Amended) An objective lens drive apparatus configured to be used in an optical pickup ~~for detecting~~ to detect the inclination of an optical disk to adjust the inclination of an objective lens in accordance with an inclination signal of the optical disk, comprising:

two magnetic circuits respectively ~~including~~ comprising a magnet configured to be magnetized in two polarities; and

a coil unit ~~including~~ comprising a focus coil, a tracking coil and a tilt coil,

wherein the focus coil, the tracking coil and the tilt coil are disposed within a magnetic gap of one of the magnetic ~~circuit~~ circuits,

wherein a tracking servo is configured to be executed by supplying currents respectively to a plurality of the tracking coils due to ~~the~~ a sum of drive forces generated in the plurality of focus coils, and

wherein ~~the~~ an inclination adjustment of the objective lens is configured to be executed by generating a moment around ~~the~~ a center of gravity of a movable part due to ~~the~~ a difference between the drive forces.

38. (Currently Amended) ~~An~~ The objective lens drive apparatus according to claim 37, wherein the magnetic circuit ~~includes~~ comprises a plurality of ~~the magnet, and the coil unit is disposed within the magnetic gap formed by the magnet gaps~~ magnets.

39. (Currently Amended) ~~An~~ The objective lens drive apparatus according to claim 37, wherein the coil unit ~~includes~~ comprises a plurality of printed circuit boards, and the focus coil and the tracking coil are separately ~~mounted~~ disposed on the printed circuit boards.

40. (Currently Amended) ~~An~~ The objective lens drive apparatus according to claim 37, wherein the coil unit ~~includes a plurality of~~ comprises a printed circuit board, and the focus coil and the tracking coil are ~~mounted~~ disposed on the printed circuit board.

41. (Currently Amended) ~~An~~ The objective lens drive apparatus according to claim 37, wherein the ~~number of the coil unit comprises only one~~ focus coil ~~is one~~ and the ~~number of the an even number of~~ tracking coil ~~is even~~ coils, and the magnet is configured to be magnetized in two polarities in a focus direction.

42. (Currently Amended) An objective lens drive apparatus ~~for use~~ configured to be used in an optical pickup, comprising:

a magnetic circuit ~~including~~ comprising a magnet configured to be magnetized in two polarities; and

a coil unit ~~including~~ comprising a focus coil, a tracking coil and a tilt coil[[,]]; and wherein a lens is configured to be adjusted in a focusing direction, a tracking direction, and a tilt direction by ~~one~~ the magnetic circuit and coils is provided in a lens holder.

43. (New) The objection lens drive apparatus according to claim 1, wherein one coil unit corresponds to one magnetic circuit.

44. (New) The objection lens drive apparatus according to claim 22, wherein one coil unit corresponds to one magnetic circuit.

45. (New) The objection lens drive apparatus according to claim 42, wherein one coil unit corresponds to one magnetic circuit.

46. (New) The objection lens drive apparatus according to claim 1, wherein at most one coil unit is disposed within the magnetic gap.

47. (New) The objection lens drive apparatus according to claim 22, wherein at most one coil unit is disposed within the magnetic gap.

48. (New) The objection lens drive apparatus according to claim 42, wherein at most one coil unit is provided to correspond to the magnetic circuit.